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HYBRIDISATION BETWEEN AUSTRALIAN RINGNECK PLATYCERCUS ZONARIUS AND RED-CAPPED PARROT PLATYCERCUS SPURIUS IN COTTESLOE, PERTH, WESTERN AUSTRALIA

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INTRODUCTION

The Red-capped Parrot *Platycercus spurius* (sometimes placed in the genus *Purpureicephalus*) and the Australian Ringneck *Platycercus zonarius* (sometimes placed in the genus *Barnardius*) are sympatric in distribution over much of south-western Australia. They frequently associate together and it is not uncommon in many places to see small mixed flocks feeding close together especially in and around orchards. Both species often also nest close together and use similar size nesting hollows.

Interspecific hybrids are generally

rare under natural conditions and have not been recorded between these two species in the past. With parrots most cases of hybridisation occur in captivity where the choice of mates is very limited and where a male of the same species is often not available. The chances of hybridisation are increased with species that are closely related phylogenetically. Storr and Johnstone (1979), Johnstone and Storr (1998) and Johnstone (2001) combined *Platycercus*, *Barnardius*, *Purpureicephalus*, *Northiella* and *Psephotus* into one genus *Platycercus* based on morphology, behaviour and calls (especially of

juveniles). Christidis *et al.* (1991) revealed a close relationship between all of these genera and including *Lathamus*, based on analysis of protein allozyme data and suggested that following further study, all could be combined. Despite this all six genera were still retained by Christidis and Boles (2008).

Pair formation depends on an exchange of signals between potential mates and these are visual courtship displays or auditory (songs). The signals usually differ markedly between closely related species living in the same area which form the effective species isolating mechanism. As mentioned earlier, hybrids are extraordinarily rare in nature, even among species that hybridise readily in captivity when conspecific mates are not available. It was therefore of considerable interest when R. B. contacted R.E.J. about a Red-capped Parrot and Australian Ringneck that had paired up and appeared to be breeding at Cottesloe, Western Australia.

Details of relevant observations, taken from notes by R. Benken, E. Dewar and K. Brockman between 2000 and 2009 are as follows:

In 2000 a wooden nest box was installed in a large Tuart *Eucalyptus gomphocephala* for Australian Ringnecks at 4 Lyons Street, Cottesloe.

In October 2006, a Red-capped Parrot and an Australian Ringneck were observed together on several occasions and the Red-

capped Parrot was seen to enter the box and spend some time inside. The Australian Ringneck often stayed close by in the Tuart or in a tree nearby.

On 5 August 2007, both birds were at the box and the Red-capped Parrot spent much time, noisily working in the box while the Australian Ringneck perched on the box or in trees nearby. Both birds were observed flying in and leaving together on several occasions. Both birds then disappeared.

In mid-July 2008 the Australian Ringneck was observed feeding the Red-capped Parrot at the entrance to the box and the Red-capped Parrot was noted as staying in the box for long periods. The Australian Ringneck spent much time vocalising, tail wagging and defending the nest site and the tree from other Ringnecks. The Red-capped Parrot was the only individual of that species observed in the neighbourhood.

On 20 September 2008, the Red-capped Parrot was out of the nest box most of the day and feral European honeybees were observed around the box. The Australian Ringneck was seen feeding the Red-capped Parrot.

On 21 September 2008, more bees were noted around the box and both birds were outside the box chattering and displaying (tail wagging by the Ringneck).

On 23 September 2008 the box had been colonised by bees, it was taken down, fumigated and

contained 3 cold eggs, one broken egg and a dead hatchling (see Figure 1) believed to have been killed by bees. A metal vent was installed on the front of the nest box to create air flow and deter bees (see Figure 3) and it was re-erected in the Tuart. Within 30 minutes both birds were back at the box, at dusk.

In October 2008, both birds were recorded in early morning arriving together, the Red-capped Parrot entered the box and late in the day both birds flew away together to return an hour or so later. Usually the Australian Ringneck returned immediately to the top of the box, called and displayed to the Red-capped Parrot perched nearby and she would then enter the box.

On 13 November 2008, at 06:30 hrs the Australian Ringneck was observed entering the box for the first time and just as his tail feathers disappeared through the entrance (part of a hollow log) the Red-capped Parrot appeared underneath his tail feathers and flew out. Following this both adults were observed entering and leaving the box many times and remaining inside for a minute or two. On several occasions the Australian Ringneck was observed feeding the Red-capped Parrot (see Figure 2). Usually when the Australian Ringneck arrived, it called and the Red-capped Parrot emerged from the box, both birds would then fly to a nearby tree where the male Ringneck would feed the Red-capped Parrot.



Figure 1. Dead hatchling presumably killed by bees in the first breeding attempt



Figure 2. Male Australian Ringneck feeding a female Red-capped Parrot



Figure 3. Nestling at nest box entrance

On one occasion the male Ringneck regurgitated food 12 times to its mate.

On 25 November 2008, both adults took turns to enter the box with most activity in the early morning and early evening.

On 28 November 2008, chirping noises were heard from the box.

On 29 November 2008, the heads of two chicks could be seen at the entrance. They had some red on the forehead above the bill, edged behind with yellow and a bluish area on cheeks, otherwise mostly green.

On 1 December 2008, the Red-capped Parrot was observed feeding one chick at the box entrance. At 11:00 hrs one chick flew from the box.

On 3 December 2008, both adults made regular visits to the box that contained two more chicks (see Figure 3).

On 4 December 2008, at 06:45 hrs both adults were in the Tuart calling and one chick kept emerging half-way out of the entrance then returning into the box. At 19:00 hrs one chick emerged onto the landing platform and immediately flew off and was joined by the Ringneck.

On 6 December 2008, at 07:20 hrs the last chick fledged with both adults in tandem.

On 1 January 2009, two of the juveniles were observed and one was fed by the Australian Ringneck and both juveniles remained near the box for an hour.

DESCRIPTION OF HYBRIDS (BASED ON NOTES AND PHOTOGRAPHS)

Narrow forehead band dull red, bordered above by a narrow yellowish band (dull on one juvenile), lores blackish grey. Crown dark olive green. Hind-neck yellowish green, forming an indistinct yellowish zone. Back, scapulars and most upperwing coverts dark green. Primary coverts dark blue, outer primaries mostly blackish. Rump and uppertail coverts pale green. Tail green. Cheeks mostly pale greenish blue with bases of some feathers (on at least one juvenile) yellowish orange. Throat, breast, belly, flanks and undertail coverts mostly dull green with some feathers tinged blue and most feathers with greyish edging giving a mottled appearance. Iris dark; bill bluish grey with pale tip; legs and feet grey (See Figure 4).

DISCUSSION

Judging from the observations and photographs there is no doubt that a male Australian Ringneck successfully mated with a female Red-capped Parrot and produced three Australian Ringneck X Red-capped Parrot hybrids. It is noteworthy that Red-capped Parrots are scarce in the Cottesloe area (this species has declined in recent years on parts of the Swan Coastal Plain) and it may have been difficult for this female to acquire a mate. On the other hand, Australian Ring-



Figure 4. Juvenile hybrids.

necks are very common in Perth suburbs and it should have been relatively easy for this male to attract an Australian Ring-neck female. All three hybrids showed characters that are inter-mediate between the parental species (e.g. forehead, lore, cheek and hindneck markings).

This record is of interest as it is the first record of hybridisation between these species and there has been an obvious breakdown of the usually impervious reproductive barrier operating between the Australian Ring-neck and Red-capped Parrot. It demonstrates that limited gene exchange may take place between two 'rosella' species in the wild that are no-doubt good

species. Interspecific hybrids are usually less fertile than birds of the parental species and in some cases they are completely sterile. It will now be interesting to see if these hybrids remain in the area and attempt to breed.

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